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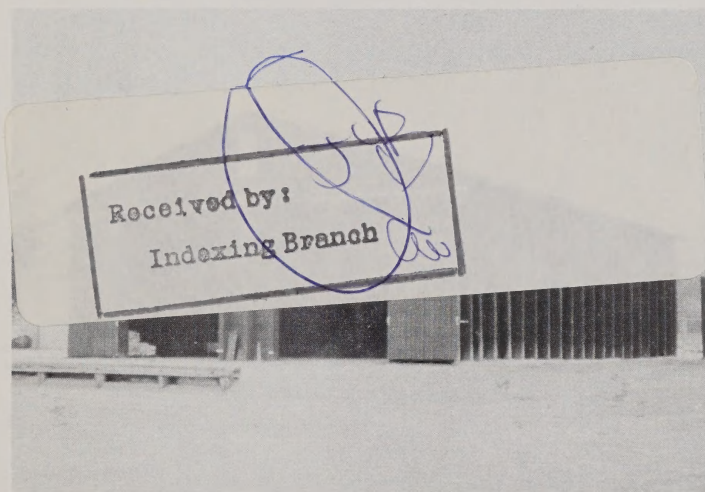
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Salt Storage Facility

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Special Project
Fiscal Year 1995



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*Cover Photo: Salt Storage Building. Photo courtesy of
Limestone Bluffs Resource Conservation and
Development Area*

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Salt Storage Facility

Introduction

In 1996, the Limestone Bluffs Resource Conservation and Development (RC&D) Area and the Cedar County engineering staff hired a contractor to build a salt storage facility in Cedar County, Iowa. A grant from the USDA Forest Service's Wood In Transportation (WIT) Program partially funded this "special" project. Special projects demonstrate new technologies or methods for improving transportation system efficiencies. They also study markets or perceptions related to timber uses in transportation structures. Special projects enable cooperators to initiate endeavors or implementation strategies that will stimulate local, regional, or national economies.

Several vehicular bridges have been constructed with cottonwood; but, one goal of this project was to see if cottonwood, which is native to Iowa, had additional uses in the Iowa transportation system. Other goals were to:

- demonstrate a new and improved method of reducing infrastructure costs in rural communities,
- increase the value and stewardship of Iowa's forests,
- make it easy and economical to use cottonwood, and
- develop a new market for underutilized, renewable resources such as cottonwood.

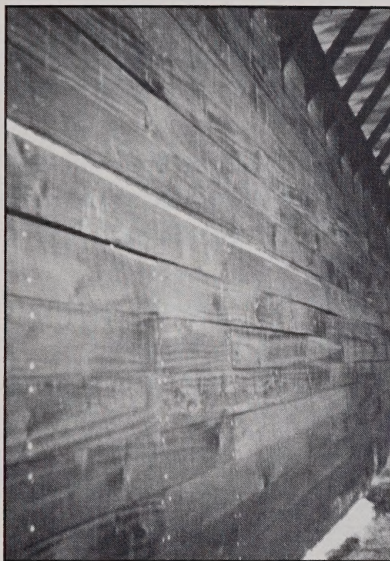
Project Background

In 1995, Mark Nahra, the Cedar County Engineer, realized the need for the county to construct a building to store salt used for ice and snow removal. He began working with the Limestone Bluff RC&D to initiate and then manage the project. Without a storage building, Mr. Nahra experienced several problems with the salt. For example, because the salt was exposed to moisture from being stored outside in piles, it had to be treated to prevent clumping. This was an avoidable expense. The county was also losing a lot of the material because of leaching. Salt shortages were common during severe winters because of a lack of storage space. The RC&D received a special project grant from the WIT Program to help with the construction of the facility.

The Limestone Bluff RC&D initiated the formation of a technical committee to identify factors that limit widespread adoption of cottonwood use. The committee also developed a plan to overcome the restricting factors of using cottonwood and to improve the cottonwood market. Although cottonwood bridges have been constructed in Iowa, the advisory committee knew that more could be done with it. The salt storage facility was constructed to satisfy a need for Cedar County and to show an additional use for cottonwood.

The Salt Storage Facility

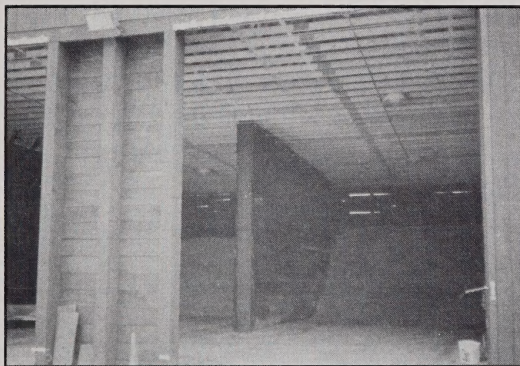
Mr. Nahra contacted Wheeler Consolidated, Inc., to provide the design plans of the 60-foot by 80-foot building. Cottonwood was used for the sides and center wall of the building. The poles and roof structure were made from Douglas-fir and larch/ponderosa pine.



Salt Storage Facility. Creosote-treated cottonwood sidewalls.

Photo courtesy of Limestone Bluffs RC&D

The outside wall height is 20 feet, with an inside wall down the center spanning three quarters the length of the building. A double layer of 2 by 12's was installed on the lower 8 feet of the walls. Above 8 feet only one layer of 2 by 12's was installed. The Batey Sawmill in Mount Pleasant, Iowa, supplied the creosote-treated cottonwood for the salt storage facility. Over 20,000 board feet of #1 cottonwood was used.



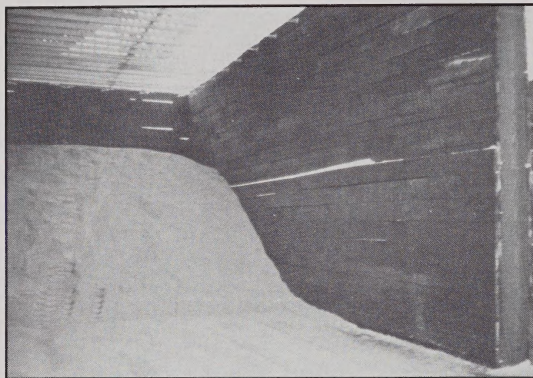
Inside view of salt storage facility. *Photo courtesy of Limestone Bluffs RC&D.*

Benefits of the Salt Storage Facility

The salt storage facility offers many benefits to Cedar County as well as other rural communities who may follow this

example. The benefits to county transportation are obvious. The building allows the county to store 1,500 tons of sand

and salt for use on county roads during the winter months. It is also large enough to be used for temporary storage of equipment during the off season.



The salt storage facility in use. *Photo courtesy of Limestone Bluffs RC&D.*

The benefits to the local economy are numerous. A local contractor erected the building on site, Batey Sawmill supplied the cottonwood, and a new market for cottonwood may be established. Another benefit

provided by this project is that the new building reduces a water pollution hazard that previously existed at the site by piling the salt outside. The new cottonwood salt storage facility encloses the salt pile and prevents runoff from entering the stream. Mr. Nahra also said that the salt storage facility gives him more options in snow and ice removal, since he no longer has to treat the salt.

Areas that could be improved

To make cottonwood more widely used by local governments, two items need to be explored. The contractor experienced some problems with warping of the cottonwood planks, and there was some variation in thickness of the planks.

The other item that needs to be addressed is that of cost. The creosote-treated cottonwood was \$1.20 per board foot, which may not be cost-competitive. However, continued projects and interest will lead to an increased market for cottonwood construction materials. An increased market may help reduce production costs. As demand increases, cost per board foot will likely decrease.

Future Plans

Warren Johnson, the Limestone Bluffs RC&D Coordinator, is very pleased with the project. He believes that the salt storage facility is aesthetically pleasing and is serving its purpose well. He likes the idea of using local timber, but wants to find a way to keep the cost down. He recommends that other communities interested in this project build a smaller building to see if that is more cost-effective.

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